Notice of Allowability	Application No.	Applicant(s)	
	10/673,093	BROWN ET AL.	
	Examiner	Art Unit	
	LYLE A. ALEXANDER	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *The 5/13/10 amendmnets*.

2. ☒ The allowed claim(s) is/are *1-5,7,9-11,13-29,31-34,56-58,60and 135 renumbered 1-35 respectivel*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date *5/13/10* .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/LYLE A ALEXANDER/
Primary Examiner, Art Unit 1797

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Kilyk on 5/13/10.

Claims 35-55 and 61-134 have been canceled as these claims were previously withdrawn from consideration.

1. A method of forming a composition comprising a candidate particulate material and a matrix, wherein the method comprises

providing one or more candidate particulate material selected from carbon black or silica for said matrix;

said candidate particulate material having at least one morphological value of the candidate particulate material selected from the group consisting of shape, size, and structure or having at least one chemical value of the candidate particulate material selected from at least one of the group consisting of overall composition, surface composition, and extractable materials, and

measuring (a) at least one homogenous interaction parameter for at least one candidate particulate material, wherein said homogeneous interaction parameter relates to how the candidate particulate material interacts with itself, and/or (b) at least one heterogeneous interaction parameter for at least one candidate particulate material and the matrix, wherein said

heterogeneous interaction parameter relates to how the particulate material and the matrix interact with each other;

adding at least one of said candidate particulate material to said matrix based upon the relationship of:

A) at least one performance property of the composition and

B) 1) said at least one homogeneous interaction parameter for each candidate particulate material, or

B) 2) said at least one homogeneous interaction parameter for each candidate particulate material and at least one heterogeneous interaction parameter for each candidate particulate material and the matrix,

and wherein said candidate particulate material and matrix once combined, form a composition that is within a specified performance property based at least in part on i) said homogenous and/or heterogeneous interaction parameter and ii) said morphological value or chemical value.

2. The method of claim 1, wherein the homogeneous interaction parameter comprises at least one interfacial potential property value, at least one value derived from an interfacial potential property value, at least one component of an interfacial potential property value, or combinations thereof for the particulate material, wherein the particulate material being measured with respect to physical phenomena that responds to interfacial potential property after effects of morphology have been removed.

3. The method of claim 2, wherein the heterogeneous interaction parameter comprises at least one interfacial potential property value, at least one value derived from an interfacial potential property value, at least one component of an interfacial potential property value, or combinations thereof for the particulate material and for the matrix, wherein the particulate material or matrix are measured with respect to physical phenomena that responds to morphology as well as an interfacial potential property of said particulate material or matrix.

4. The method of claim 1, wherein the selected candidate particulate material has an interfacial potential property value, value derived from an interfacial potential property value, component of an interfacial potential property value, or combinations thereof which results in a target value for the performance property of the composition, wherein the target value is at least one measure of phenomena selected from the group consisting of one or more of interfacial potential by masstone, interfacial potential by gas adsorption techniques, interfacial potential from adsorption from solution, interfacial potential from light scattering or disc centrifuge, interfacial potential by oil absorption, interfacial potential by wicking rates, interfacial potential by rheological tests, interfacial potential by sedimentation volumes, interfacial potential by phase segregations, interfacial potential by inverse gas chromatography, interfacial potential by spreading pressure, interfacial potential by drop contact angle, interfacial potential by measuring the pressure of gas to remove a probe liquid from the pores of a packed bed of the particulate material after it has been filled or partly filled by the liquid, interfacial potential by measuring the centrifugal force necessary to immerse particles of the particulate material floating on a probe liquid, interfacial potential by measuring the two-dimensional pressure sufficient to force

particles of the particulate material floating on a probe liquid in a Langmuir trough, interfacial potential by measuring the relative adsorption of dye probes, interfacial potential by measuring the heat when the particulate material is immersed into a probe liquid, interfacial potential by measuring the heat released when a test adsorbate is adsorbed by the particulate material, and interfacial potential by measuring the sediment volumes in an homologous series of test liquids.

5. The method of claim 1, further comprising the step of determining the relationship between A) and B): comprising obtaining at least one trend and/or functional relationship between A) at least one performance property of two or more compositions, each of said compositions comprising the matrix and a particulate material, and B) 1) at least one homogeneous interaction parameter for the particulate material or B) 2) at least one homogeneous interaction parameter for the particulate material and at least one heterogeneous interaction parameter for the particulate material and the matrix.

7. The method of claim 1, wherein the particulate material is carbon black.

9. The method of claim 1, wherein the particulate material is fumed silica.

10. The method of claim 1, wherein the matrix comprises at least one polymer, solvent, colorant, surfactant, different particulate material, or combinations thereof.

11. The method of claim 1, wherein the matrix is a polymer.

13. The method of claim 3, wherein the interfacial potential property value, value derived from an interfacial potential property value, component of an interfacial potential property value, or combinations thereof for the particulate material and/or the matrix are determined by a liquid absorptometry method.

14. The method of claim 13, wherein the absorptometry method uses a liquid other than DBP or paraffin oil.

15. The method of claim 14, wherein the absorptometry method uses propylene carbonate, water, ethylene glycol, or mixtures thereof.

16. The method of claim 3, wherein the interfacial potential property value, value derived from an interfacial potential property value, component of an interfacial potential property value, or combinations thereof for the particulate material and/or the matrix are determined by a wicking rate method comprising comparing the wicking rate of two or more different liquids in a particulate packed column.

17. The method of claim 16, wherein the wicking rate method uses nonane, hexadecane, isoalkanes, ethylene glycol, formamide, bromonaphthalene, acetonitrile, benzaldehyde, propylene carbonate, aniline, cyclohexanol, nitroanisole, dichlorobenzene, water, or mixtures thereof.

18. The method of claim 3, wherein the interfacial potential property value, value derived from an interfacial potential property value, component of an interfacial potential property value, or combinations thereof for the particulate material and/or the matrix are determined by a yield point method comprising measuring a degree of flocculation of the particulate material.

19. The method of claim 18, wherein the yield point method uses a hydrocarbon.

20. The method of claim 19, wherein the hydrocarbon is paraffin oil, hexadecane, nonane, or mixtures thereof.

21. The method of claim 3, wherein the interfacial potential property value, value derived from an interfacial potential property value, component of an interfacial potential property value, or combinations thereof for the particulate material and/or the matrix are determined by a interfacial potential vapor adsorption method comprising using an inert gas for gas adsorption analysis.

22. The method of claim 21, wherein the interfacial potential vapor adsorption method uses pentane, nonane, acetonitrile, methylene chloride, water, or mixtures thereof.

23. The method of claim 3, wherein the interfacial potential property value, value derived from an interfacial potential property value, component of an interfacial potential property value,

or combinations thereof for the particulate material and/or the matrix are determined by an IGC method comprising measuring retention time of a gas probe flowing through a packed bed of particulate material.

24. The method of claim 23, wherein the IGC method uses butane, pentane, hexane, heptane, tetrahydrofuran, acetone, ethyl acetate, ether, chloroform, acetonitrile, or mixtures thereof.

25. The method of claim 1, wherein the performance property is conductivity, dispersibility, impact strength, color, reinforcement, powder flow, tribocharging, and rheology.

26. The method of claim 1, wherein the relationship is the difference between the work of cohesion for the particulate material and the work of adhesion for the particulate material and the matrix.

27. The method of claim 1, wherein the method further comprises the step of selecting the candidate particulate material based on at least one morphological value of the particulate material selected from the group consisting of shape, size, and structure.

28. The method of claim 1, wherein the method further comprises the step of selecting the candidate particulate material based on at least one chemical value of the particulate material selected from at least one of the group consisting of overall composition, surface composition, and extractable materials.

29. The method of claim 3, further comprising the step of determining the interfacial potential property value, the value derived from an interfacial potential property value, the component of an interfacial potential property value, or combinations thereof for the matrix, wherein the step of determining the interfacial potential property value, the value derived from an interfacial potential property value, the component of an interfacial potential property value, or combinations thereof for the matrix comprises determining the performance property of a composition comprising the matrix and at least one probe particulate material having a predetermined interfacial potential property value, value derived from an interfacial potential property value, component of an interfacial potential property value, or combinations thereof, and wherein the performance property is selected from the group consisting of molecular weight, molar volume, dipole moment, relative permittivity, viscosity, density, surface tension, melting point, glass transition temperature, color, and UV absorption.

31. The method of claim 3, wherein the matrix has a predetermined interfacial potential property value, the value derived from an interfacial potential property value, the component of an interfacial potential property value, or combinations thereof, as derived from one or more of Hildebrand parameters, hydrogen bonding characteristics, electrostatic factors, fractional polarity, Hansen solubility parameters, Snyder's Polarity index, or solvatochromic parameters.

32. The method of claim 3, further comprising the step of determining a surrogate matrix having a predetermined interfacial potential property value, value derived from an interfacial

potential property value, component of an interfacial potential property value, or combinations thereof, wherein said surrogate matrix comprises a chemically related formulation of a customer's exact formulation.

33. The method of claim 32, further comprising the step of selecting the candidate particulate material based on a predetermined relationship between:

A) at least one performance property of a composition comprising the surrogate matrix and the particulate material, and

B) a combination of

i) at least one interfacial potential property value, at least one value derived from an interfacial potential property value, at least one component of an interfacial potential property value, or combinations thereof for the particulate material and

ii) at least one interfacial potential property value, at least one value derived from an interfacial potential property value, at least one component of an interfacial potential property value, or combinations thereof for the surrogate matrix.

34. The method of claim 33, further comprising the step of determining the relationship between A) and B).

56. A method of forming a composition comprising a candidate particulate material and a matrix, said candidate particulate material having at least one morphological value of the candidate particulate material selected from the group consisting of shape, size, and structure or having at least one chemical value of the candidate particulate material selected from at least one

of the group consisting of overall composition, surface composition, and extractable materials, and,

wherein the method comprises providing one or more candidate particulate material selected from carbon black or silica for said matrix and determining a relationship by:

A) measuring at least one performance property of the composition and

B) measuring 1) at least one homogeneous interaction parameter for the particulate material, wherein said homogeneous interaction parameter relates to how the particulate material interacts with itself, or

B) 2) at least one homogeneous interaction parameter for the particulate material and at least one heterogeneous interaction parameter for the particulate material and the matrix, wherein said heterogeneous interaction parameter relates to how the particulate material and the matrix interact with each other,

adding at least one of said candidate particulate material to said matrix based upon the relationship, wherein the selected candidate matrix has an interfacial potential property value, value derived from an interfacial potential property value, component of an interfacial potential property value, or combinations thereof which results in a target value for the performance property of the composition, and wherein said candidate particulate material and matrix once combined, form a composition that is within a specified performance property based at least in part on i) said homogenous and/or heterogeneous interaction parameter and ii) said morphological value or chemical value.

57. The method of claim 56, wherein the homogeneous interaction parameter comprises at least one interfacial potential property value, at least one value derived from an interfacial potential property value, at least one component of an interfacial potential property value, or combinations thereof for the particulate material.

58. The method of claim 57, wherein the heterogeneous interaction parameter comprises at least one interfacial potential property value, at least one value derived from an interfacial potential property value, at least one component of an interfacial potential property value, or combinations thereof for the particulate material and for the matrix.

60. The method of claim 56, further comprising the step of determining the relationship between A) and B).

135. The method of claim 2, wherein the particulate material being measured with respect to physical phenomena that responds both to morphology and interfacial potential property, wherein phenomenon that respond to interfacial potential are assigned an interfacial potential property value to the particulate material where at least one of the following conditions is met selected from the group consisting of:

A) effect of morphology is eliminated by also measuring the physical phenomena with an inert probe wherein an inert probe is one for which the interfacial potential is negligible;

B) an external parameter selected from pressure or temperature is changed and the response to that parameter allows an independent calculation of one or more morphological and interfacial potential values; and

C) the physical phenomenon is measured with the same particulate material in different fluids.

The following is an examiner's statement of reasons for allowance: In addition to the remarks of record, the cited prior art fails to teach or suggest the claimed method of identifying a product specification of carbon black or silica by measuring at least one morphological or chemical value and additionally measuring at least one homogeneous and/or heterogeneous interaction parameter such that the carbon black or silica is deemed within the product specification based on the measured the morphological value or chemical value and the homogeneous and/or heterogeneous interaction parameter.

2. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LYLE A. ALEXANDER whose telephone number is (571)272-1254. The examiner can normally be reached on Monday though Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LYLE A ALEXANDER/
Primary Examiner, Art Unit 1797